

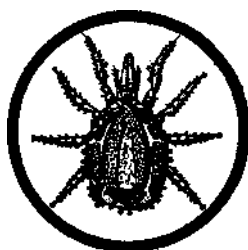
Bulletin
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Aetholaelaps sylstrai, a New Genus and New Species of Mite
from a Madagascar Lemur. (Acarina: Laelaptidae).

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Texas Technological College,
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Howard **K.** Gloyd, Director.

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Aetholaelaps sylstrai, a New Genus and New Species of Mite from a Madagascar Lemur. (Acarina: Laelaptidae).

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In August of 1955 Rupert L. Wenzel, Chicago Natural History Museum, received two vials of mites from Dr. Anthony W. Sylstra, Zoo Veterinarian of the Zoological Hospital and Biological Research Institute of the Zoological Society of San Diego. These mites had been collected from two Madagascar lemurs, *Lemur mongoz*, which had been received by the San Diego Zoo from Madagascar, via New York Harbor, and Dr. Sylstra wished to have them identified. Mr. Wenzel turned the mites over to the junior author for determination. The mites represent a very interesting new species in an undescribed genus of the family Laelaptidae.

This new genus is intermediate between the Dermanyssidae and Laelaptidae. Dermanyssid characters are the weak and membranous corniculi and the posteriorly produced, coxa-embracing peritremalia. Other characters which are not universal for dermanyssids but which are more dermanyssid than laelaptid are : the holovenral plate of the male being widest between coxae II and III, the concave sides of the dorsal plate, and the long and membranous tectum (reaching as far as the middle of the palpal tibia).

Laelaptid characters are : only five deutosternal teeth, tritosternal lacinae thickly covered with tiny setae (ciliated) rather than having sparse, marginal dentation ; digitus mobilis of female distinctly dentate and subtended by a semi-circle of setae ; digitus fixis with a distinct pilus

dentilus ; male chela with the digitus fixis degenerate and the digitus mobilis and spermatodactyl fused into a long, scimitar-like blade.

Although the mite exhibits characteristics of both families, it is placed with the Laelaptidae because the facies is decidedly of that family.

***Aetholaelaps* new genus.**

Similar to *Laelaps* except as follows : corniculi weak and membranous; peritremalia continuing posteriorly and embracing coxa IV ; dorsal plate with an anterior, knob-like projection ; all coxal setae are slender, except the marginal setae of coxae II and III which are very heavy and spur-like ; all ventral setae heavy, stiff ; sternal plate of female rectangular, about two-thirds as long as wide ; genitoventral plate of female with four pairs of setae ; holovenral plate of male only slightly expanded posterior to coxae IV, widest between coxae II and III; dorsal plate of both sexes entire, covering most of the dorsum and with lateral margins concave.

The name *Aetholaelaps* is formed by combining the generic name *Laelaps* with the Greek adjective *aethes*, meaning unusual or strange.

Genotype, *Aetholaelaps sylstrai* n. sp. Monotypic.

***Aetholaelaps sylstrai* n. sp.**

FEMALE. (Fig. 1 and 2.) A small, oval mite with coarse and rather sparse setae. The body widest in the region of legs II. Legs I and II thicker than legs III and IV. Total length, exclusive of gnathosoma, 620 μ ; width 360 μ .

Venter. (Fig. 1) The *sternal plate* has a length of 130p, and a width, between sternal setae III of 180 μ . Anterior margin strongly arched, bow-shaped ; posterior margin flatly concave. The anterior corners project slightly toward the space between coxae I and II; then the sides diverge toward coxa III where it reaches its greatest width and where the third setae are attached ; then the plate constricts sharply almost to the genital plate, where it erodes forward, making a concave posterior margin with posteriorly projecting corners. The first sternal setae are near the anterior margin and about as far from each other as from the sides of the plate. Setae II are lateral of a line drawn from I to III and a little closer to I. The two pairs of sternal pores are small, rounded, and about midway between setae I and II, and II and III. The endopodal plate is small, the anterior portion narrow, the posterior broader. The metasternal seta is just off this plate and of a size with the sternal setae. The third sternal pore is small and round, and close to the sternal plate. The *geni-*

toventral plate is 270μ long by 150μ wide. It is broadly rounded posteriorly and nearly touches the anal plate. It bears four pairs of setae, including the genital. They are the same size and shape as the sternal setae. The genital setae are clearly in from the margin and a little below a line drawn through the middle of coxae IV. The next two pairs of setae are on the margin; the third pair, on the posterolateral edge, is just off the margin but still attached to the plate by a narrow peninsula. Occasionally one or both setae will be completely isolated from the plate. The anterior portion of the plate is a fan-shaped, closely striated, membranous flap that reaches one-third of the way onto the sternal plate. Reticulations are marginal only and very faint.

The metapodal plates are small oblong bodies, about 25μ long, that are close to legs 1 V and almost at the margin of the body. A very small plate may be found near the lateral margin of the genitoventral plate. Sometimes these and the metapodal plates are lacking, or seem to be sub-dermal. The unsclerotized portion of the venter is finely striated and bears from 14 to 17 pairs of setae. The inner setae are sub-equal to those on the plates but they become progressively smaller peripherally and those right on the margin are quite small. The *anal plate* is triangular, with broadly rounded corners. The anterior margin is straight or slightly concave, the lateral margin slightly convex. The anal pore is slightly above center. The paired anal setae are adjacent to the pore at the anterior margin. The cribrum is confined to a narrow band on the posterior margin. At the mid-anterior margin of the cribrum is a large socket, indicating that a seta ought to be there but of the 40 specimens that we have seen, the seta is lacking on every one.

The stigma is dorsal and between coxa III and IV. A narrow plate runs back ventrally from the stigma and embraces coxa IV, exactly as in the *Dermanyssidae*. The peritreme extends dorsally to the anterior margin of coxa I. It is slightly sinuous, seems to consist of a series of nodes and internodes and lies in a narrow plate.

Dorsum. (Fig. 2) The dorsal plate (590μ long by 300μ wide) covers almost the entire dorsum. The widest point is between legs II and III. The posterior margin is broadly and evenly rounded, the lateral margins slightly concave. The anterior projection is a small dome which bears six short, fairly heavy setae. Back of this are about 33 pairs of setae, fairly evenly dispersed. The longest and heaviest setae are medial. The lateral marginal setae are short but heavy, the posterior marginal setae are short and slender. The smallest setae are the posterior subterminal pair.

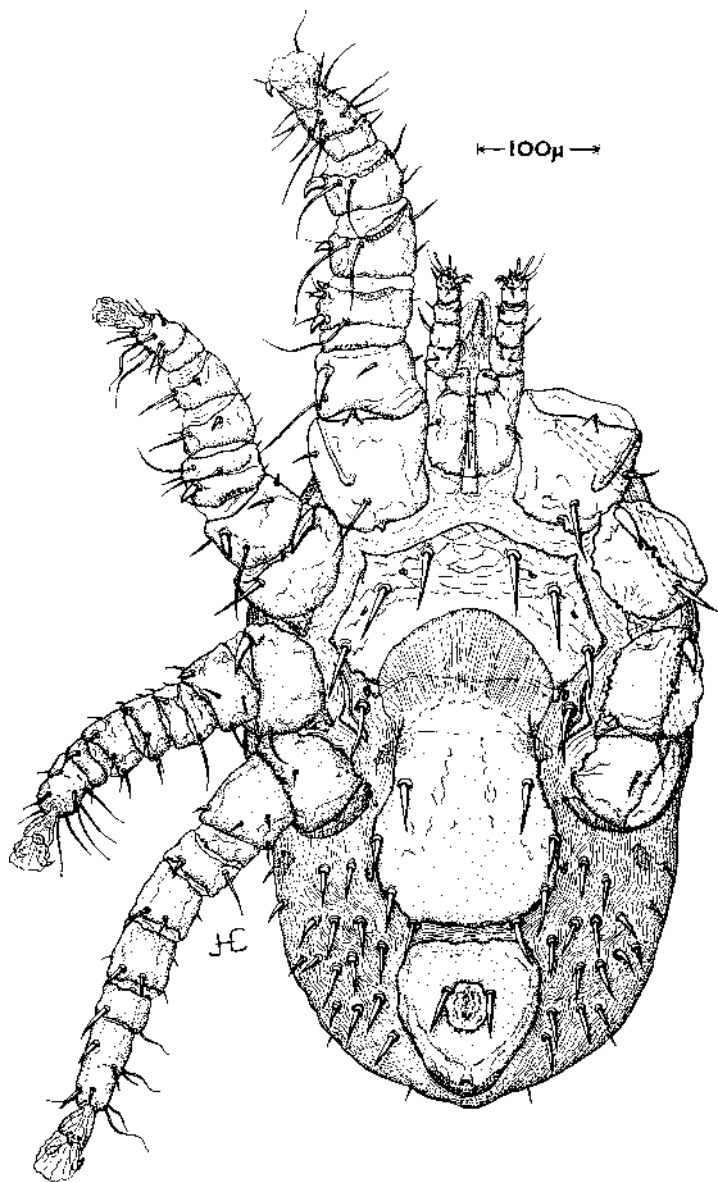


Figure 1. *Aetholaelaps sylstrai*, ventral view of female.

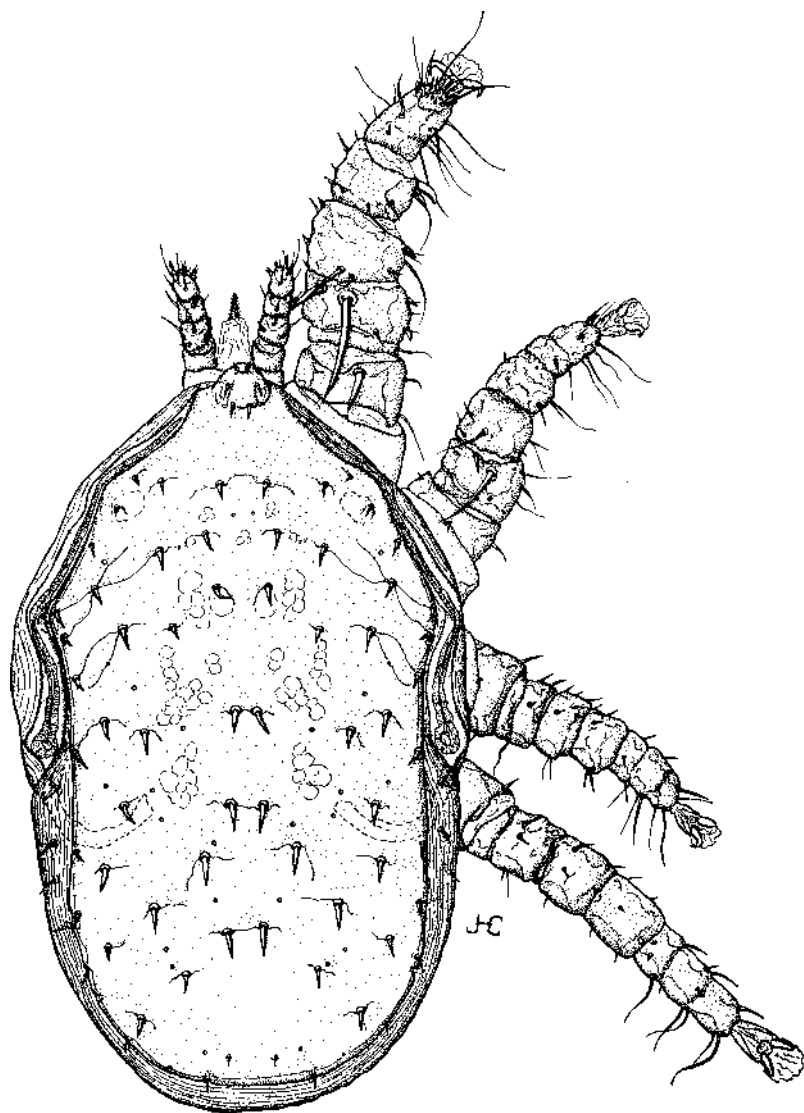


FIGURE 9. *Anthracinus subdorsalis*, dorsal view of female.

Legs. Exclusive of the coxae and ambulacrum, the average length of the legs is : I, 280 ; II, 266 ; III, 214 ; IV, 334 μ . Leg I is the thickest ; leg II is somewhat thicker than III and IV, which are equally slender.

All tarsi have strong claws and well developed pulvillar membranes. The chaetotaxy of *leg I* is remarkable. On the ventral side the coxa bears two ordinary, slender setae and a single, long, flat elevation ; the trochanter has a prominent ventral spur-like seta apically and a long, slender seta basally, a heavy seta on the dorsal side, and two small, slender setae laterally complete the complement. *Femur 1* has three short, spur-like setae toward the outer side and a very long, slender seta mid-ventrally. Two long, heavy setae are on the dorsal side ; one is about as long as the femur and the other about twice as long ; five small, slender setae complete the complement. *Genu I* and *tibia I* have identical chaetotaxy except the genu has a short spur-like seta and the tibia has a longer and recurved spur-like seta on the outer apical margin. Each has two long, slender setae apically on the ventral side. Six additional small setae, of varying lengths complete the total. *Tarsus I* has no spur-like seta. It has about 14 long, slender setae and one short seta in addition to the cluster in the sensitive area at the apex. In *leg II* the anterior marginal seta of the coxa is greatly enlarged and spur-like ; the posterior seta is slender and about one-half as long as the coxa is wide. The chaetotaxy of trochanter II is similar to that of trochanter I except the ventral spur-like seta is smaller and there is no dorsal seta. *Femur II* ventrally has one spur-like seta and two long slender setae ; dorsally it has three small setae (two very small) and one long fairly heavy seta which is as long, or slightly longer, than the femur. *Genu II* and *tibia II* each have a small, thickened seta ventrally that could in no way be called spur-like. *Tarsus II* has a short, heavy seta at the inner margin of the apex. Otherwise the chaetotaxy of the genu, tibia and tarsus is similar to that of leg I. In *leg III* the coxa has a very heavy anterior marginal seta and a slender posterior seta as in coxa II. *Coxa II* has a short, slender seta. Otherwise the chaetotaxy of *legs III and IV* is similar. The ventral setae are rather short and stiff ; the dorsal setae are very small. The anterolateral setae are fairly heavy and stiff and the posterolateral tarsal setae are long and flexible.

Gnathosoma. (Fig. 3) The fused coxae are the same length as the free pedipalpal segments. Gnathosomal setae slender ; hypostomal setae all subequal and shorter than the gnathosomal setae. Five deutosternal teeth, in single file. Pedipalpal trochanter with a spur on the inner apical margin. (Fig. 3d) There are two unusual setae on the apex of the tibia. These are blunt, or even slightly knobbed, at the tip. The outer

is about one-third longer than the inner. (Fig. 3a and d) The modified two-tined seta (Fig. 3a) is a little longer than the tarsal segment.

The corniculi are rather long, membranous, somewhat wrinkled, and slightly divergent. There seem to be four hypostomal processes. The inner pair is apparently smooth. The outer and slightly more ventral pair seems to be weakly dentate. The hypostomal processes are extremely delicate and are not easy to see, even with the phase contrast microscope.

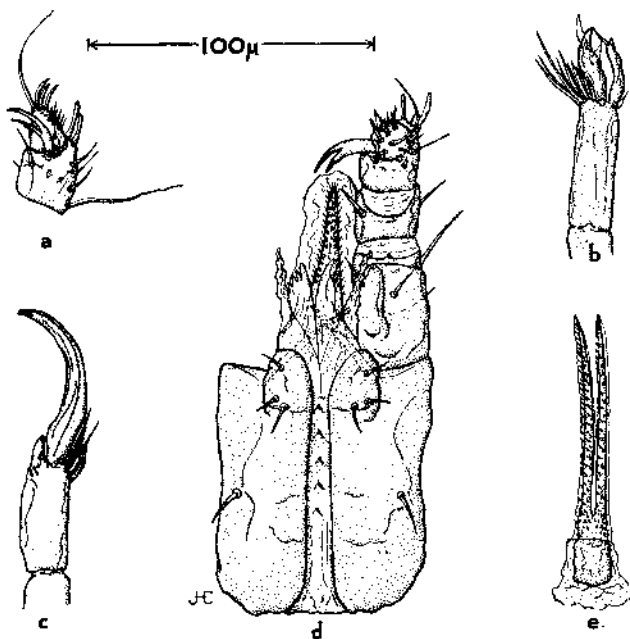


Figure 3. *Aetholaelaps sylstrai*, gnathosoma. (a) inner view of apical two segments of the pedipalp; (b) chelicera of female; (c) chelicera of male; (d) ventral view of the gnathosoma of the female; (e) tritosternum.

The epipharynx is rather long. The apical portion is narrow, pointed, and closely ciliated; the basal portion is broader and apparently devoid of setation. The salivary stylets are slender and nearly straight structures reaching to about the middle of the corniculus. The tectum is a rather slender, smooth-margined, membranous and transparent flap that reaches nearly to the middle of the palp tibia.

The female chela (Fig. 3b) is a rather remarkable organ. The *digitus mobilis* is heavy and well sclerotized and bears two long, slender,

transparent, and almost seta-like teeth. The outer tooth originates near, and extends well beyond, the apex of the *digitus mobilis*. The inner originates near the middle and extends obliquely out, parallel to the in-curving tip of the arm itself. The *digitus mobilis* is subtended by a semicircle of very long setae, some even longer than the arm itself. The *digitus fixis* is slender, slightly incurving and a little shorter than the *mobilis*. It bears a slender, straight seta near the tip. At the base of the fixed digit is a short, inflated seta. The chela is about one-fifth the total length of the chelicera.

The tritosternum (Fig. 3e) is typically laelaptid. The lacinae branch about their width above the basal segment and reach to the base of the corniculi. They are closely and uniformly ciliated, over their entire surface.

MALE. (Fig. 4) Except for the usual sexual differences, the male is similar to the female. Average length, exclusive of gnathosoma, 490 μ ; width 300 μ . The dorsal plate is 475 μ long by 275 μ wide. The average length of the legs, exclusive of the coxa and ambulacrum, is: leg I, 250 ; leg II, 200 ; leg III, 190 ; and leg IV, 280 μ .

Venter. All the ventral plates fused into one holoventral plate. The total length of this plate averages 380 μ . The front margin almost encircles the genital pore. The widest point is between coxae II and III and averages 175 μ . It is only slightly divergent behind coxae IV. There are 11 to 12 pairs of setae on the holoventral plate including the paired anal setae. Apparently there are only two pairs of pores. They are small, semicircular, and lie between setae I and II, and II and III. As in the female, the socket for the odd anal seta is there but the seta is lacking; whether naturally or by accident we do not know. The unsclerotized portion of the venter bears 10 to 12 pairs of setae, all on the opisthosoma.

The *dorsum*, *legs*, *gnathosoma*, and chaetotaxy of the legs are all as in the female. The male chela (Fig. 3c) is typically laelaptid. The *digitus fixis* is small and degenerate. The *digitus mobilis* is fused with the spermatodactyl into a long, flat, slightly recurved blade which is between one-half and one-third the total length of the chelicera. It is subtended by a corona of long setae, or seta-like structures.

DEUTONYMPH. (Not illustrated.) Only one specimen was available. It measured 580 μ long ; 345 μ wide. Sternal shield ; 246 μ long, 145 μ wide between the third sternal setae.

Venter. Sterniventral plate rounded front and back ; reticulations indistinct. Four pairs of heavy, thorn-like marginal setae and three pairs of small, round, marginal pores ; one between each two setae.

Anal plate egg-shaped with the anterior margin abruptly but shallowly concave. Anal pore central. The unsclerotized portion of the venter

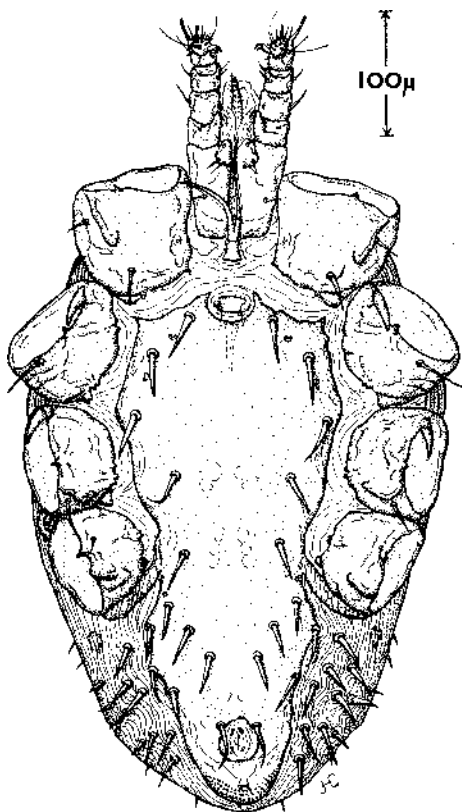


Figure 4. *Aetholaelaps sylstrai*, ventral view of male.

bears 16 pairs of spine-like setae that are not as heavy nor as long as those on the plate. Peritremalia and peritremal plate lacking. Peritreme dorsolateral, long, sinuous, extending to the middle of coxa I.

Dorsum. The dorsal plate measures 540 by 280 μ . It is shaped as in the female and covers most of the dorsal surface.

Legs. Legs I missing. Trochanter of leg II with three ventral setae. The anterior short and slender, the posterior, short and very heavy, spur-like, the mid-ventral slender and very long—longer than the trochanter. Femur, genu, and tibia with four to five slender setae of which the anterior ones are very short and the posterior quite long. The tarsus has similar setae but more of them and has in addition, an apical, spur-like seta dorsally. Trochanter of leg III with four setae, the anterior one heaviest, but not spur-like ; the remaining three are slender and of moderate length. Other leg segments missing. Leg IV longer than leg III but similar in chaetotaxy. All claws are missing.

Gnathosoma similar to the female.

PROTONYMPH. (Not illustrated.) No free specimens of this stage were found, but two of the 31 females had protonymphs within them. They were not dissected out but it could be seen that they had the major features characteristic of laelaptid protonymphs, such as two dorsal plates and intermediate platelets, and a short peritreme.

No *larval* forms were found.

Type specimens. The holotype female, slide 231-21, and allotype male, slide 231-7, are deposited in the collection of the United States National Museum, Washington, D.C. These slides bear the following data: Ex Madagascar Lemur, *Lemur mongoz*; Madagascar—at Zoological Society of San Diego via New York Harbor ; 29 June 1955 ; Collector, A. W. Sylstra. Numbered paratypes (30 females, 7 males and 1 deutonymph), bearing the same data as the holotype, will be deposited in the collections of the following institutions : The Chicago Academy of Sciences, Chicago, Illinois ; Chicago Natural History Museum, Chicago, Illinois ; U.S. National Museum, Washington, D.C. ; British Museum (Natural History), London, England ; Natal Museum, Pietermaritzburg, South Africa ; South Australian Museum, Adelaide, South Australia ; Instituto Butantan, São Paulo, Brazil; Museum National d'Histoire Naturelle, Paris, France ; Institut Royal des Sciences Naturelle de Belgique, Bruxelles, Belgium ; Universitetets Zoologiske Museum, Copenhagen, Denmark ; Rijksmuseum van Natuurlijke Historie, Leiden, Holland ; Riksmuseum, Stockholm, Sweden.

Type host: *Lemur mongoz*, a Madagascar lemur.

Type locality: Madagascar, by way of the Zoological Society of San Diego, via New York Harbor.

Dr. Anthony W. Sylstra, veterinarian at the San Diego Zoological Society and the collector of the mites herein described, writes as follows concerning the habitat on the host and possible damage to it : "These mites were not confined to one single area on the lemurs, they were on the head, abdomen, around the tail and on the legs. The skin was roughened in certain areas where the mites seemed to concentrate in numbers — from the crown of the head down along the back of the neck and down towards the shoulders. This roughness, which I felt but did not observe closely, may have been scarified epidermis or might have been waste material from these mites. This same roughened area was evident over the hips and down to the tail head. I rather believe that the aforementioned areas were lesions."

In the key to the genera of Laelaptidae, found in the *Manual of the Parasitic Gamasid Mites* (in press), the genus *Aetholaelaps* goes to the couplet which separates *Longolaelaps* and *Laelaps*. The genus *Longolaelaps* is elongated and slender and therefore readily distinguished from *Aetholaelaps*. In *Aetholaelaps* the peritremalia partially encircles coxa IV, the corniculi are weak and membranous, and there is a distinct knob-like anterodorsal projection from the idiosoma. These characters do not prevail in *Laelaps*. It might be mentioned also that in *Laelaps*, there are always some posterior coxal setae that are enlarged ; in *Aetholaelaps sylstrai*, the posterior coxal setae are all slender.

We take pleasure in naming the mite for its discoverer, Dr. Anthony W. Sylstra.